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# MPEGscope Startup Guide

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<b>Printing history</b>	<p>New editions of this guide are issued to reflect extensive changes made to the software. Revisions may be issued between editions to correct errors in the manual. A new edition may not be issued with every application release. The application release, at the date of printing, is noted in the following table.</p> <table><tr><td>Manual Name:</td><td>MPEGscope Startup Guide</td></tr><tr><td>Product Number:</td><td>E6277C, E6300A, E6301A, E6302A</td></tr></table> <table><tr><th>Printing Date</th><th>Manual Part Number</th><th>Application Version</th></tr><tr><td>October, 1997</td><td>E6277-92000</td><td>A.02 CD-ROM</td></tr><tr><td>May, 1998</td><td>E6277-92001</td><td>A.03 CD-ROM</td></tr><tr><td>August, 1998</td><td>E6277-92007</td><td>A.04 CD-ROM</td></tr><tr><td>January, 1999</td><td>E6277-92020 Ed. 1</td><td>A.04.02 CD-ROM</td></tr><tr><td>July, 1999</td><td>E6277-92020 Ed.2</td><td>A.05 CD-ROM</td></tr><tr><td>June, 2000</td><td>E6277-92020 Ed.3</td><td>A.06 CD-ROM</td></tr></table>	Manual Name:	MPEGscope Startup Guide	Product Number:	E6277C, E6300A, E6301A, E6302A	Printing Date	Manual Part Number	Application Version	October, 1997	E6277-92000	A.02 CD-ROM	May, 1998	E6277-92001	A.03 CD-ROM	August, 1998	E6277-92007	A.04 CD-ROM	January, 1999	E6277-92020 Ed. 1	A.04.02 CD-ROM	July, 1999	E6277-92020 Ed.2	A.05 CD-ROM	June, 2000	E6277-92020 Ed.3	A.06 CD-ROM
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<b>Product support</b>	<p>Contact your local Agilent Technologies representative or see “How To Contact Us”, page 1-4.</p> <hr/> <table> <tr> <td>Agilent Technologies</td><td></td></tr> <tr> <td>Advanced Networks Division</td><td>Phone: + 61-3-8877-8633</td></tr> <tr> <td>PO Box 221</td><td>Fax: + 61-3-8877-5550</td></tr> <tr> <td>Blackburn, 3130</td><td>Email: y900_support@agilent.com or dv-support@agilent.com</td></tr> <tr> <td>Victoria, Australia</td><td>Web: <a href="http://advanced.comms.agilent.com/mpegscope">http://advanced.comms.agilent.com/mpegscope</a></td></tr> </table> <hr/>	Agilent Technologies		Advanced Networks Division	Phone: + 61-3-8877-8633	PO Box 221	Fax: + 61-3-8877-5550	Blackburn, 3130	Email: y900_support@agilent.com or dv-support@agilent.com	Victoria, Australia	Web: <a href="http://advanced.comms.agilent.com/mpegscope">http://advanced.comms.agilent.com/mpegscope</a>
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Victoria, Australia	Web: <a href="http://advanced.comms.agilent.com/mpegscope">http://advanced.comms.agilent.com/mpegscope</a>										

## Certification

Agilent Technologies certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (formerly National Bureau of Standards), to the extent allowed by that organization's calibration facility, and to the calibration facilities of other International Standards Organization members.

## Additional Information for Test and Measurement Equipment

To comply with EMC regulations, shielded cables should be used on all appropriate connections. Otherwise, the user has to ensure that, under operating conditions, the Radio Interference Limits are still met at the border of the user's premises.

## Warnings

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

**Ground the Equipment:** For safety, Class 1 equipment (equipment having a protective earth terminal), an uninterruptible safety ground must be provided from the mains power source to the product input wiring terminals or supplied power cable. Before operating the equipment, guard against electric shock in case of fault by always using the provided 3-conductor power cord to connect the equipment to a grounded power outlet.

**DO NOT use in hazardous environments:** Do not operate the product in an explosive atmosphere or in the presence of flammable gases or fumes. This product is designed for indoor use only.

**DO NOT use repaired fuses or short-circuited fuse holders:** For continued protection against fire, replace line fuses only with fuses of the same voltage and current rating and type.

**Keep away from live circuits:** Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

**DO NOT operate damaged equipment:** Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to an Agilent Technologies Sales and Service Office for service and repair to ensure the safety features are maintained.

**DO NOT substitute parts or modify equipment:** Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to an Agilent Technologies Sales and Service Office for service and repair to ensure features are maintained.

**DO NOT clean with fluids:** Doing so may make the equipment unsafe for use. Power down the equipment and disconnect the power cord before cleaning. To clean, use a soft dry cloth.

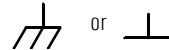
## Safety Symbols



If you see this symbol on a product, you must refer to the manuals for specific Warning or Caution information to avoid personal injury or damage to the product



Indicates the field wiring terminal that must be connected to ground before operating the equipment. Protects against electrical shock in case of fault.



Frame or chassis ground terminal. Typically connects to the equipment's metal frame.



Alternating current (ac).



Direct current (dc).



Indicates hazardous voltages and potential for electrical shock.



Indicates that antistatic precautions should be taken.



This product complies with CSA requirement CSA 22.2 No. 1010.1, NRTL/C, EN 61010-1:1993 + A2:1995/IEC 1010-1:1990 + A1:1992 + A2:1995 Safety requirements for electrical equipment for measurement, control, and laboratory use.



Notice for European Community: This product complies with the relevant European legal Directives: EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC.

Das CE-Zeichen zeigt die Übereinstimmung mit allen für das Produkt geltenden Direktiven der Europäischen Union an.

## ISM 1—A

This is the symbol for an Industrial, Scientific, and Medical Group 1 Class A product.

Dieses Zeichen steht für ein Produkt der Gruppe 1, Klasse A, für den Einsatz im industriellen, wissenschaftlichen und medizinischen Bereich.



This product meets the requirements of the Australian EMC Framework (AS/NZS 2064.1/2 for ISM:1A), enforced by the Radiocommunications Act 1992.

### WARNING

Calls attention to a procedure, practice, or condition that could cause bodily injury or death.

### CAUTION

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

### Certification

Agilent Technologies certifie que cet instrument est conforme aux spécifications publiées au moment de sa sortie d'usine. Agilent Technologies atteste en outre qu'il est possible de trouver référence à ses mesures d'étalonnage auprès de l'organisme de normalisation américain "United States National Institute of Standards and Technology" (auparavant National Bureau of Standards), dans la mesure des possibilités autorisées par cet organisme, et dans celles autorisées par d'autres membres de l'Organisation Internationale de Normalisation.

### Informations complémentaires relatives à l'équipement de test et de mesure

Conformément aux réglementations concernant la compatibilité électromagnétique, il convient d'utiliser des câbles blindés sur toutes les connexions appropriées. S'il n'emploie pas ce type de câble, l'utilisateur doit vérifier qu'en condition d'exploitation les interférences radio sont encore acceptables à la limite de ses locaux.

### Avertissement

Les précautions générales de sécurité ci-dessous doivent être observées au cours de toutes les phases d'exploitation, de maintenance et de réparation de l'instrument. Le non-respect de ces précautions ou d'avertissements spécifiques cités ailleurs dans le manuel entraîne la violation des normes de sécurité relatives à la conception, la fabrication et l'utilisation prévue de cet instrument. Agilent Technologies n'assume aucune responsabilité en cas de non-respect de ces exigences.

Mise à la terre de l'équipement: en vue de garantir la sécurité, pour l'équipement de classe 1 (comportant une borne mise à la terre de protection), une mise à la terre permanente doit être assurée de la source d'alimentation secteur aux bornes de câblage d'entrée de l'instrument ou au câble d'alimentation fourni. Avant d'utiliser l'équipement, évitez les chocs électrostatiques en cas de défaillance de l'instrument en utilisant toujours le cordon d'alimentation 3 conducteurs fourni pour brancher l'équipement à une prise de terre.

N'UTILISEZ PAS dans un environnement à risque : N'utilisez pas l'instrument dans des conditions de risques d'explosion ni en présence de gaz ni d'émanations inflammables. Cet instrument est conçu exclusivement pour un usage intérieur.

N'UTILISEZ PAS de fusibles usagés ni de porte-fusibles en court-circuit: Pour une protection permanente contre le feu, remplacez les fusibles uniquement par des fusibles de même tension, de même calibre et de même type.

Tenez vous à l'écart des circuits sous tension: Le personnel d'exploitation ne doit pas retirer les capots ni les blindages. Les procédures impliquant ces manipulations doivent être exécutées exclusivement par un personnel formé à la maintenance. Dans certaines conditions, des tensions dangereuses peuvent être générées même lorsque l'équipement n'est pas sous tension. Afin d'éviter tout risque d'électrocution, N'EXÉCUTEZ PAS de procédure nécessitant la manipulation des capots et des blindages sans qualification à cet effet.

N'UTILISEZ PAS d'équipement endommagé: Si les caractéristiques de l'instrument relatives à la sécurité ont été atteintes, que ce soit en raison d'un dommage physique, d'une humidité excessive, ou pour toute autre cause, METTEZ L'EQUIPEMENT HORS TENSION et ne l'utilisez plus jusqu'à ce que la sécurité de son fonctionnement puisse être vérifiée par un personnel formé à la maintenance. Si nécessaire, retournez l'instrument à un bureau commercial et de service après-vente Agilent Technologies pour le faire réparer et garantir ses caractéristiques de sécurité.

NE REMPLACEZ PAS de pièce ni ne modifiez l'équipement: En raison des risques supplémentaires que cela implique, n'installez pas de pièce de remplacement ni n'exécutez aucune modification non autorisée sur l'instrument. Retournez-le à un bureau commercial et de service après-vente Agilent Technologies pour le faire réparer et garantir ses caractéristiques de sécurité.

NE NETTOYEZ PAS avec des produits liquides: L'emploi de produits liquides peut être risqué. Mettez l'équipement sous tension et débranchez le cordon d'alimentation avant le nettoyage. Utilisez un chiffon doux et sec.

### Symboles de sécurité



Si vous apercevez ce symbole sur un instrument, vous devez vous référer aux manuels pour de plus amples informations concernant les notes Avertissement et Attention en vue d'éviter des blessures corporelles ou des dommages à l'instrument.



Indique la borne de câblage qui doit être connectée à la terre avant la mise en route de l'équipement. Protège contre les électrocutions en cas de défaillance de l'instrument.



Borne de mise à la terre de cadre ou de châssis. Connectée en principe au cadre métallique de l'équipement.



Courant alternatif (ca).



Courant continu (cc).



Indique une tension dangereuse et des risques d'électrocution.



Indique que des précautions anti-statiques doivent être prises.



Cet instrument satisfait aux spécifications CSA 22.2 No. 1010.1, NRTL/C, EN 61010-1:1993 + A2:1995/IEC 1010-1:1990 + A1:1992 + A2:1995 en matière de sécurité pour les équipements électriques de mesure, de contrôle et de laboratoire.



Label européen: cet instrument est conforme aux directives européennes suivantes: EMC 89/336/EEC et basse tension 73/23/EEC.

Das CE-Zeichen zeigt die Übereinstimmung mit allen für das Produkt geltenden Direktiven der Europäischen Union an.

## ISM 1—A

Ce symbole indique que l'instrument est un instrument de type Industriel Scientifique et Médical Groupe 1 Classe A.

Dieses Zeichen steht für ein Produkt der Gruppe 1, Klasse A, für den Einsatz im industriellen, wissenschaftlichen und medizinischen Bereich.



Cet instrument est conforme aux spécifications de l'Australian EMC Framework (AS/NZS 2064.1/2 for ISM:1A), mises en oeuvre par le Radiocommunications Act de 1992.

### AVERTISSEMENT

Attire l'attention sur une procédure, pratique ou condition comportant un risque de blessure ou d'électrocution.

### ATTENTION

Souligne qu'une procédure, pratique ou condition peut entraîner des dommages à l'équipement ou la perte permanente de données.



# DECLARATION OF CONFORMITY

According to ISO/IEC Guide 22 and EN 45014

**Manufacturer's Name** Hewlett-Packard Australia Limited

**Manufacturer's Address** Advanced Networks Division  
347 Burwood Highway  
Forest Hill, 3131  
Victoria, Australia

declares that the product:

**Product Name** MPEGscope Plus, MPEGscope Portable, MPEGscope Lite, MPEGscope Portable Lite, and interfaces

**Model Number** E6277C, E6300A, E6301A, E6302A, E6289A, E6291A, E6292A

**Product Options** All

conforms to the following product specifications:

**Safety** EN 61010-1:1993 + A2:1995/IEC 1010-1:1990 + A1:1992 + A2:1995

**EMC<sup>1</sup>** EN 55011:1991 / CISPR 11:1992 + A2:1996 (Group 1, Class A)

EN 50082-1:1997

IEC 1000-4-2:1995 4kV CD, 8kV AD<sup>2</sup>

IEC 1000-4-3:1995 3 V/m, 80% AM mod @ 1Khz

IEC 1000-4-4:1995 0.5 kV Signal Lines, 1 kV Power Lines<sup>2</sup>

IEC 1000-4-5:1995 1.0 kV Line to line, 2.0 kV Line to earth<sup>2</sup>

IEC 1000-4-6:1995 3 V level, 150 KHz to 80 MHz, Signal and Power Lines

IEC 1000-4-11:1994 30% Fluctuations, for 25 cycles<sup>3</sup>

<sup>1</sup> This product was tested in a typical configuration.

<sup>2</sup> Temporary loss of performance may be experienced under these conditions

<sup>3</sup> User intervention may be required under these conditions

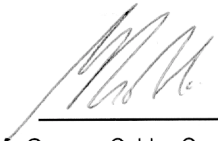
## Supplementary Information

This product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carries the CE-marking accordingly.

Melbourne, Australia,

Monday, 26 July 1999

Issue 2

  
Graeme Cobb - Quality Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or for regulatory topics only  
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## Introduction

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# Introduction

Welcome to MPEGscope, your new digital video test solution from Hewlett-Packard. Combining real-time functionality with offline analysis of MPEG, DVB, ATSC, ISDB, and private streams, MPEGscope can speed the process of verifying and debugging digital video encoders, multiplexers, and decoders. With MPEGscope, real-time analyzing begins automatically as soon as you receive transport stream data. You can record, capture, store, play, trigger on specific errors, and analyze data in a variety of ways. MPEGscope features an intuitive, easy-to-use graphical user interface and online help system to enable you to become quickly productive.

This guide contains information about setting up and connecting MPEGscope to a system under test. It also cites technical specifications and applicable digital video standards. For information about the computer in which MPEGscope is contained, refer to the computer user's guide shipped with MPEGscope. For more information on the specific MPEGscope applications you have purchased, refer to the MPEGscope online help and printed materials shipped with your MPEGscope system.

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## **CAUTION**

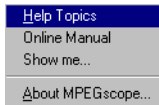
Hewlett-Packard does not guarantee that MPEGscope is compatible with other Windows<sup>®</sup> applications or hardware. Hewlett-Packard will not support problems caused by altering system configuration or initialization files.

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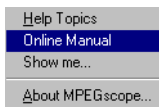
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## For More Information

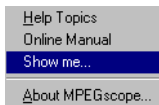
If you are using MPEGscope for the first time or performing a new task, MPEGscope's online help can guide you quickly to information you may need. You can access help in the following ways.



- Select **Help Topics** from the **Help** menu to access the MPEGscope help environment. You can then use **Contents**, **Index**, or **Find** to locate information about a specific topic. You can also enter the help environment from any dialog containing a **Help** button. Clicking on **Help** will launch a help topic specific to that dialog.



- Select **Online Manual** from the **Help** menu to load the MPEGscope User's Guide in Acrobat® Reader. This guide contains illustrated steps for testing with each MPEGscope application.



- Select **Show me...** from the **Help** menu to view a list of self-paced tutorials to lead you through typical test scenarios.



- Where indicated on the user interface, click the right mouse button over a field or element in a dialog to obtain context-sensitive help on that item. Alternatively, you can access context-sensitive help by clicking the **?** button in the upper right corner of a dialog, then clicking again over a dialog element.

# How To Contact Us

If you need technical support, contact the support center in your region.

	Location	Telephone	Email
North America	9780 South Meridian Blvd Englewood, Colorado USA 80112	1-800-698-0061	Americas_Support@agilent.com
Europe	PO Box 999 Mail Stop 70 1180 AZ Amstelveen The Netherlands	+ 31 20 547 9900 You may also call these local numbers:  France + 33-1-69294114 UK + 44-1344-366 666 Ireland + 353-1-6158 222 Germany, Austria, Switzerland + 49-180-524-6333 Italy + 39-02-92 12 22 41	ots-europe@agilent.com  customer-care_tfo@agilent.com test-measurement_uksupport@hp.com  messtechnik_support@agilent.com agilent_direct@agilent.com
Japan	Hachioji Business Center 9-1 Takakura-Cho, Hachioji Tokyo 192 Japan	0120-421-345	mac_support@agilent.com
Asia Pacific	438B Alexandra Road Blk B, #05-08 Alexandra Technopark Singapore 119968	1800-274-4554  You may also call these local toll-free numbers:  Australia 1800-143-243 China 10800-650-0021 Hong Kong 800-930-871 India 000-6517-MTF-278-1596 Indonesia 001-800-65-7340 Japan 0120-421-345 Korea 080-999-1500 Malaysia 1800-80-1454 New Zealand 0800-44-5841 Philippines 1800-1-651-0170 Taiwan 0080-65-1317 Thailand 001-800-65-6206	asia_ots@agilent.com

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# Getting Started

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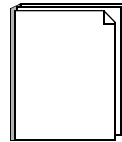
## Starting an MPEGscope Test Session

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This section leads you quickly through the necessary steps to begin testing with MPEGscope. You can find more detailed information in the guides specified below.

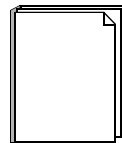
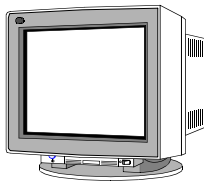
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- ① Set up MPEGscope and connect the keyboard, mouse, and monitor.



Computer user's guide (for instructions on setting up and using the computer in which your MPEGscope is installed)

- ② Power on MPEGscope. The test software will start automatically.



Microsoft NT® user's guide (for instructions on setting up and using Windows®).

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### Note

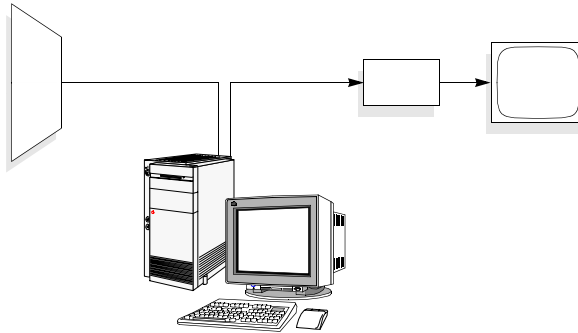
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MPEGscope comes with all software pre-installed. If you need to reinstall the software, refer to Appendix B, "Reinstalling Software".

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- ③ Connect MPEGscope to the system under test.



“Connecting to Interfaces”,  
page 2–4.

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**CAUTION**

If you experience a problem during setup, refer to “Troubleshooting”, page 2–13, for instructions. *Do not remove the cover or handle any MPEGscope hardware unless advised to do so by your HP customer support representative.* Please disregard any instructions in your PC user’s guide directing you to check or install components inside your PC. Interfering with MPEGscope hardware may invalidate your warranty.

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**CAUTION**

To ensure adequate ventilation, do not cover or obstruct vent holes. Overheated equipment can produce unpredictable measurement results.

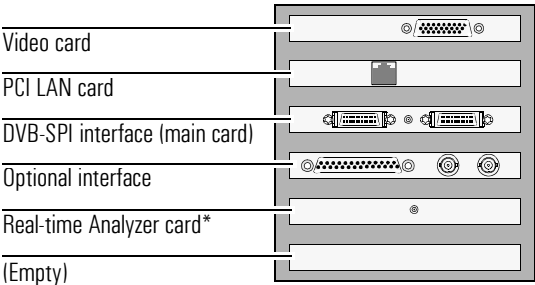
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## Connecting to Interfaces

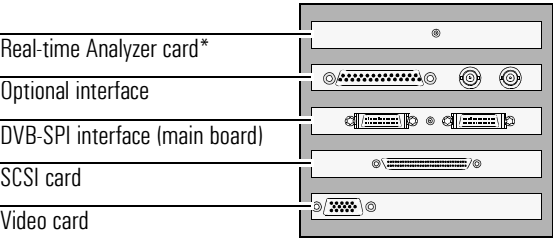
MPEGscope comes equipped with a DVB-SPI (Synchronous Parallel Interface) on the main MPEGscope board, and may also have another interface installed if you have purchased an optional interface. The following sections explain how to connect your system under test to the MPEGscope interfaces.

The MPEGscope interface cards are positioned differently depending on the model of computer. The illustration below shows the slot positions for both the PC and portable models.

### MPEGscope Plus (E6277C) and MPEGscope Lite (E6301A) (on back of computer)



### MPEGscope Portable (E6300) and Portable Lite (E6302A) (on side of computer)



\*This slot is blank for the "Lite" versions.



**CAUTION: Electrostatic Discharge (ESD)**

All connectors on MPEGscope and the IEEE 1394 interface are susceptible to electrostatic discharge. Take the necessary anti-static precautions to minimize electrostatic damage.



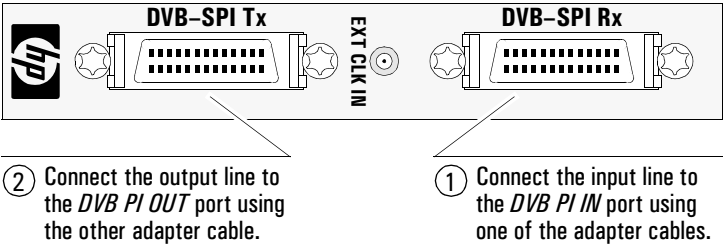
**WARNING: Shock Hazards**

- Be aware of shock hazards when connecting equipment.
- Use the supplied power adapter which can handle the required loads and protect you from electrical shock.
- Do not defeat the purpose of MPEGscope's power cord ground, and do not block access to the power cord or switch, in case you need to disconnect power in an emergency.

## To Connect to the DVB-SPI Interface

The DVB-SPI (Synchronous Parallel Interface) includes two adapter cables that adapt the SPI interface's AMPLIMITE™ 26-pin connectors to DVB-standard DB-25 connectors.

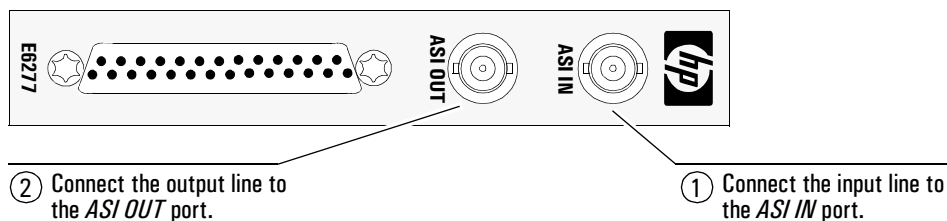
### SPI Interface



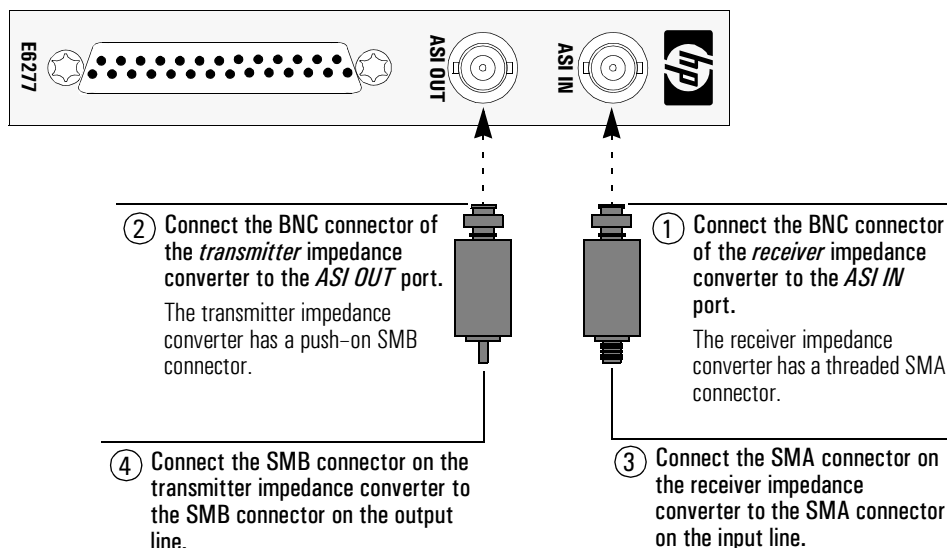
## To Connect to the ASI and Serial ECL (DHEI) Interface

The ASI (Asynchronous Serial Interface) and Serial ECL (Digital Head End Interface) includes two blue impedance converters for the ASI interface's M2S mode and a DHEI Expansion In/Out Y-Adapter cable for the DHEI interface.

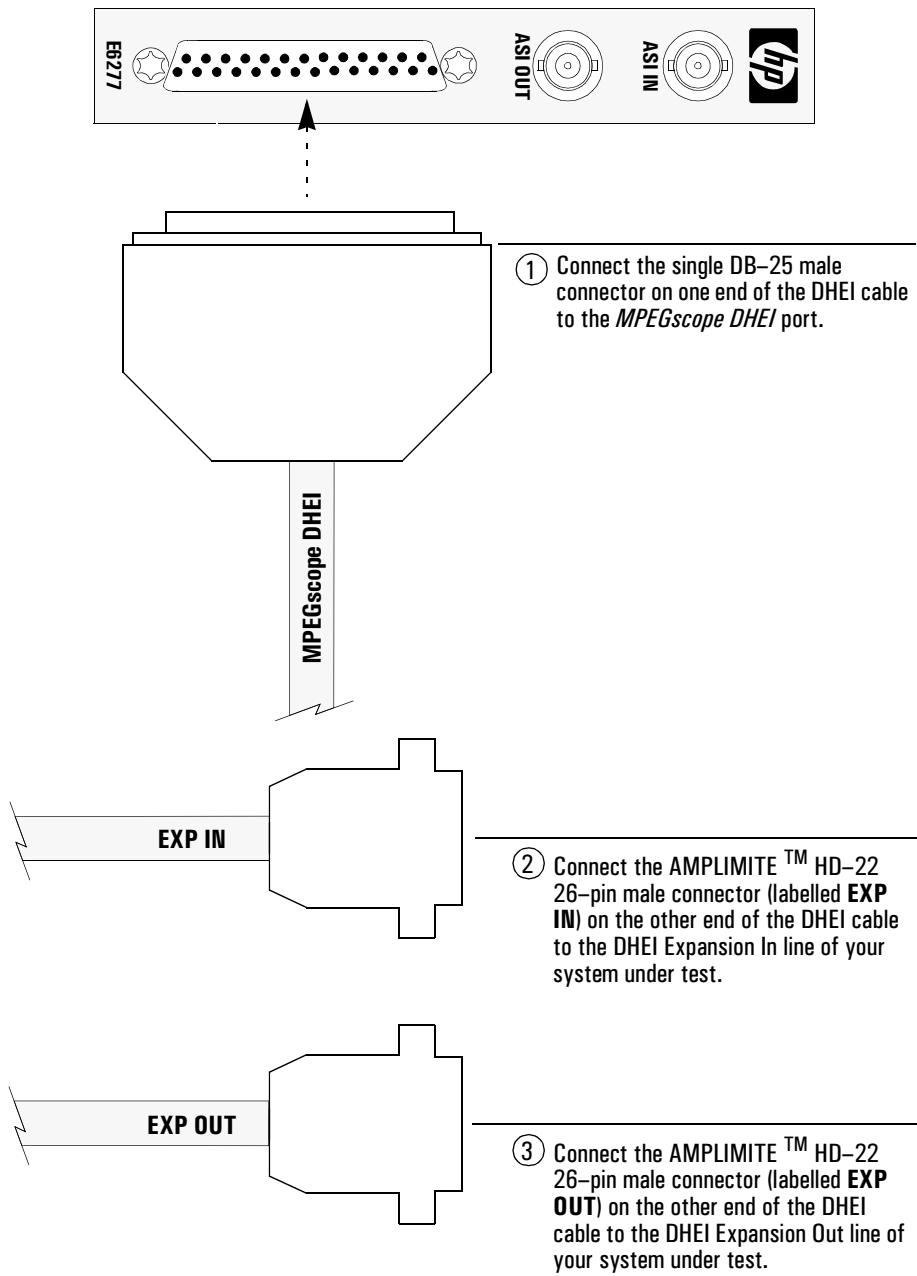
### ASI Interface



### M2S Mode



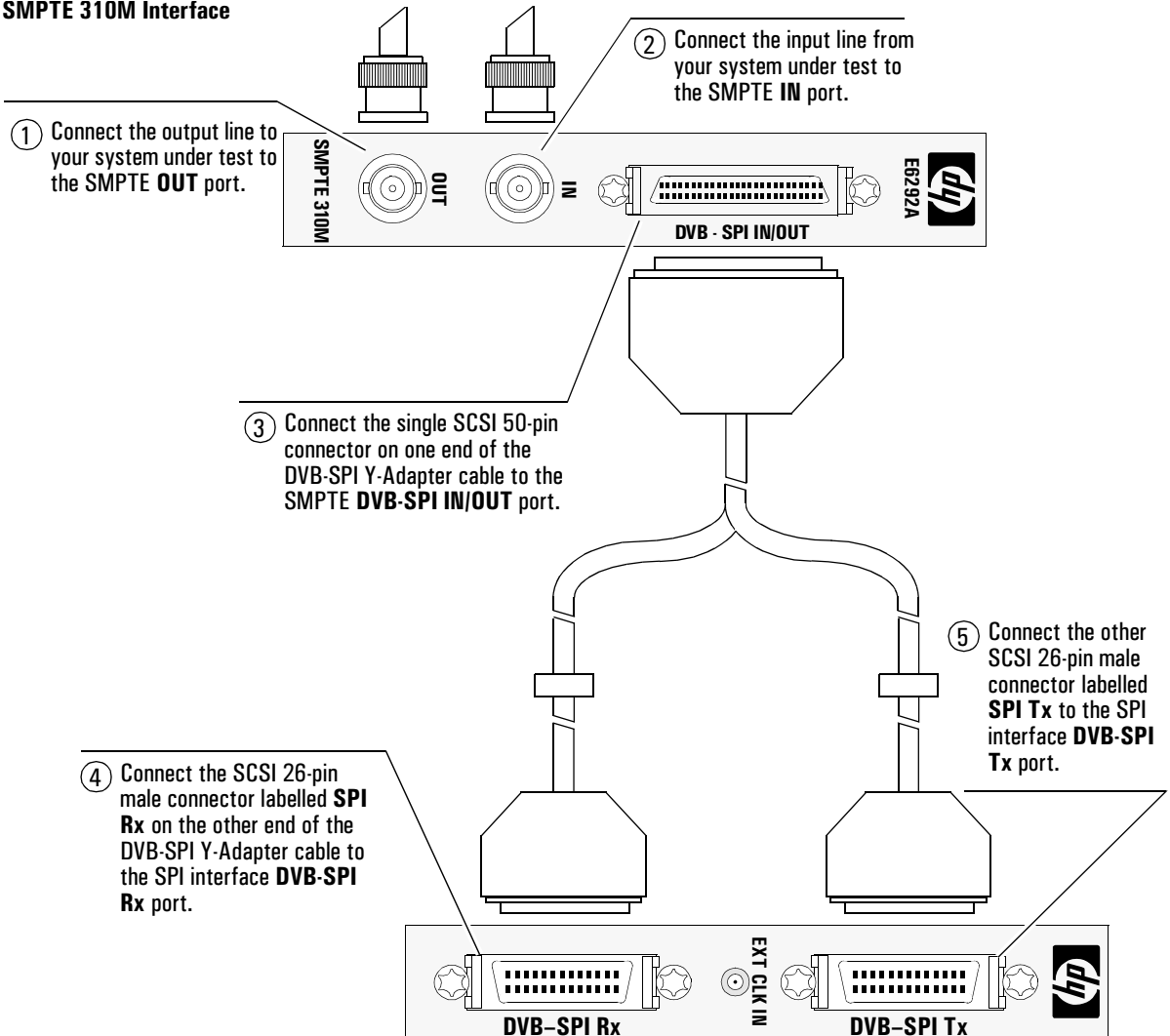
DHEI Interface



## To Connect to the SMPTE 310M Interface

The SMPTE 310M interface is a serial-to-parallel converter for the DVB-SPI interface. It includes a DVB-SPI Y-Adapter cable to connect the SMPTE 310M interface to the SPI interface.

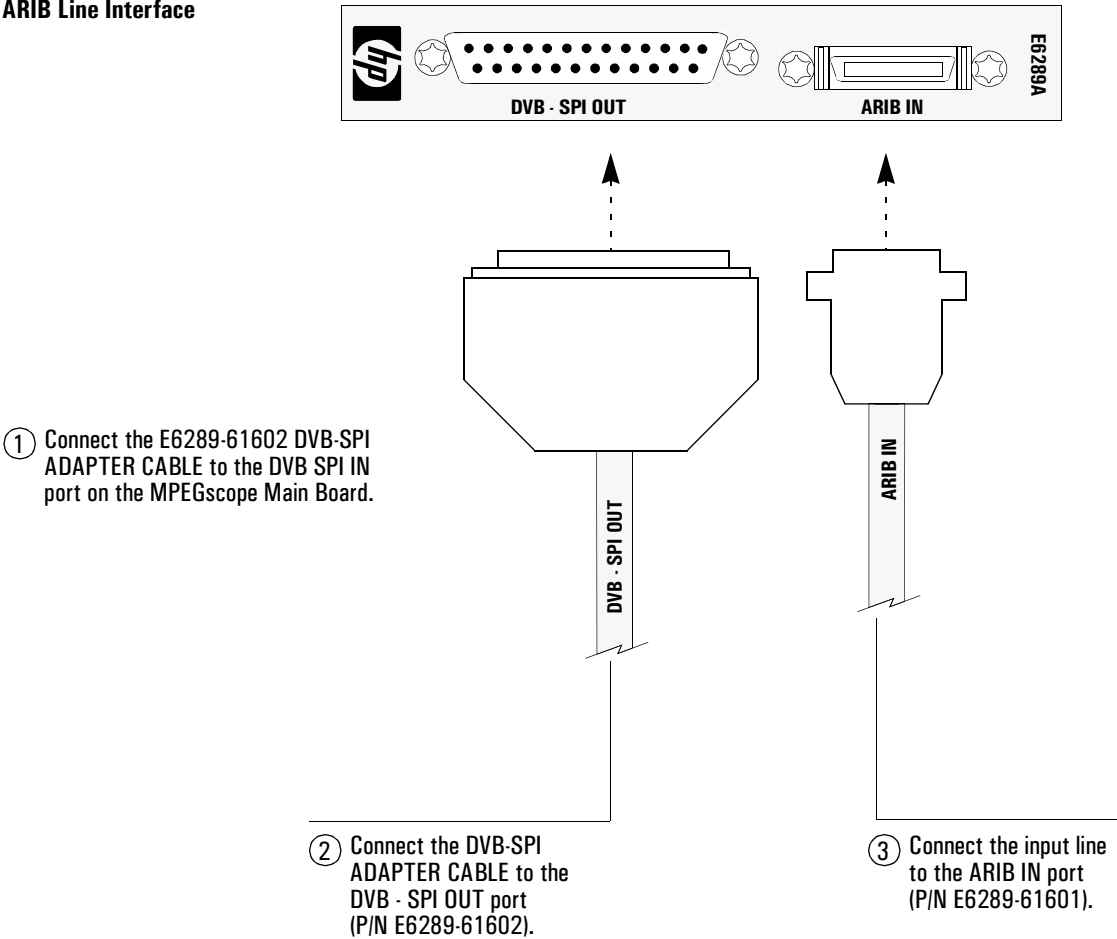
### SMPTE 310M Interface



## To Connect to the ARIB Interface

The ARIB (Association of Radio Industries and Businesses) interface is an 8-bit parallel TTL interface. It includes an ARIB IN cable and a DVB-SPI OUT cable to connect the ARIB interface to the SPI interface.

### ARIB Line Interface

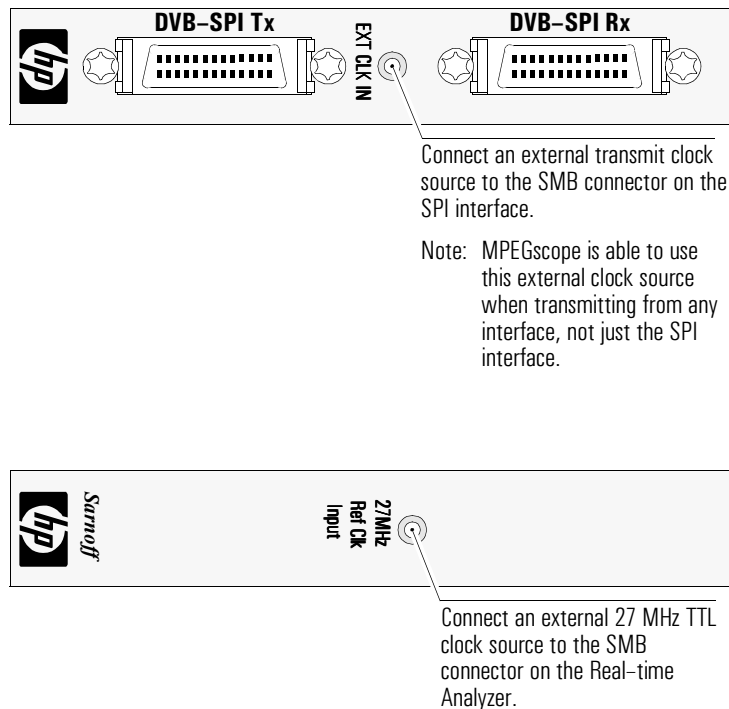




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## Connecting an External Clock Source

You can use an external clock to synchronize the MPEGscope transmitter to the network. You can also use a 27 MHz external clock as an analysis reference for the Real-time Analyzer.



The *EXT CLK IN* SMB connector accepts a 1 V p-p unbalanced signal input, terminating with 50 ohms. The *27 MHZ REF CLK* SMB connector accepts a TTL input. It has low impedance to ground when the unit is turned off.

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### Note

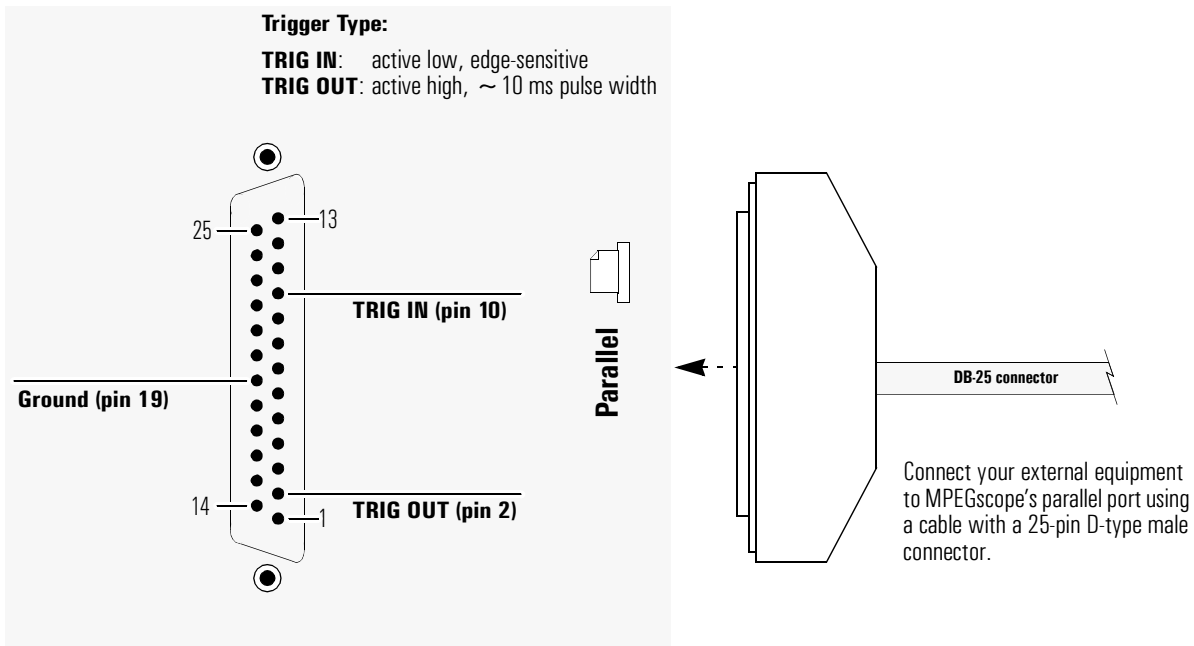
For optimum performance, the total length of the external clock cable should not exceed three meters in length (approximately 10 feet).

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## Connecting an External Trigger Cable

You can use a trigger cable with a 25-pin D-type male connector to connect your external equipment to MPEGscope's parallel port. The illustration below shows MPEGscope's parallel printer port female external pin layout.



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### Note

Before you can send or receive an external trigger, you must also configure MPEGscope software from the Recorder/Player's **Record Setup** dialog, then shut down the default NT parallel port drivers and start the HP parallel port driver from the Windows® NT Control Panel. Press the **Help** button from the **Record Setup** dialog for instructions.

For more information on configuring MPEGscope software to send or receive an external trigger, refer to the MPEGscope online help system. Press the **Tips** button at the MPEGscope Launch Pad, select the **Index** tab, and type "triggers" to see the list of relevant topics.

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# Troubleshooting

This section lists some problems that may occur during initial MPEGscope setup.

Symptom	Suggested Action
Nothing happens when I press the power button.	Ensure that all cables and power cords are firmly plugged in and that you have correctly followed the setup instructions in your PC user's guide. If your machine still does not start, contact your Hewlett-Packard customer support representative who will advise you further. Do not attempt to reinstall or configure the Windows <sup>®</sup> system software unless your customer support representative instructs you to.
The MPEGscope application doesn't load when I power up the machine.	<ul style="list-style-type: none"><li>• Check that MPEGscope is one of the program folders in your Windows<sup>®</sup> <b>Start</b> menu. If the MPEGscope folder is there, try to load the application by selecting the MPEGscope program name. If this works, refer to Windows<sup>®</sup> online help to add the MPEGscope folder to your <b>Startup</b> folder.</li><li>• If the MPEGscope folder is not there, check that the MPEGscope application files are installed on the hard drive. If you need to reinstall the software, refer to Appendix B, "Reinstalling Software".</li><li>• If these measures do not solve the problem, contact your Hewlett-Packard customer support representative.</li></ul>
MPEGscope has crashed and is displaying the blue "crash dump" screen.	<ul style="list-style-type: none"><li>• Press the <b>Reset</b> button and hold down for a few seconds to make sure that MPEGscope resets.</li></ul> <p>DO NOT POWER OFF THE PC, OTHERWISE THE MASTER BOOT RECORD ON THE SYSTEM DISK MAY BECOME CORRUPTED.</p> <p>You can help avoid blue screen problems by ensuring that all hard disk activity has stopped before you log in. When the login screen appears, wait until the hard disk light on the front of your PC has completely stopped flickering.</p>
When I try to reboot after getting the blue "crash dump" screen, I get a system disk error.	<p>The master boot record on the system disk may be corrupt. You can repair it with the Windows<sup>®</sup> NT install disks and emergency repair disk shipped with MPEGscope, as follows:</p> <ol style="list-style-type: none"><li>1 Boot MPEGscope using the Windows<sup>®</sup> NT Setup Disk 1. Follow the prompts at the bottom of the screen and insert Windows<sup>®</sup> NT Setup Disk 2 when directed.</li><li>2 When the <b>Welcome to Setup</b> screen is displayed, press <b>R</b> to start the system disk repair. After doing this, the following menu appears:  <div><div>[X] Inspect registry files</div><div>[X] Inspect startup environment</div><div>[X] Verify Windows NT system files</div><div>[X] Inspect boot sector</div><div>Continue (perform selected tasks)</div></div></li></ol>

Symptom	Suggested Action
	<div><div>3</div><div>Clear the <b>X</b>'s from all the options except <b>Inspect boot sector</b>, then select <b>Continue (perform selected tasks)</b> and press <b>Enter</b>.</div></div> <div><div>4</div><div>Insert Windows<sup>®</sup> NT Setup Disk 3 when directed then insert the MPEGscope Plus Windows<sup>®</sup> NT Repair Disk when prompted.</div></div> <div><div>5</div><div>The boot sector repair will take a few seconds. When the message on the screen indicates the repair is complete, remove all diskettes from the drive and restart the system.</div></div> <div><div>6</div><div>After the system restarts, run the Check Disk (chkdsk) utility to determine if any problems remain with your system disk, as follows:<div><div>a)</div><div>Launch the Disk Administrator from the <b>Start/Programs/Administrative Tools (Common)</b> menu.</div></div><div><div>b)</div><div>From the Disk Administrator, click anywhere in the <b>Disk 0</b> field to select <b>C:</b> drive.</div></div><div><div>c)</div><div>From the <b>Tools</b> menu, select <b>Properties</b>, then select the <b>Tools</b> tab.</div></div><div><div>d)</div><div>From the <b>Error-checking</b> box, select the <b>Check Now</b> button.</div></div><div><div>e)</div><div>From the <b>Check Disk C:\</b> dialog, select both Check Disk options—<b>Automatically fix file system errors</b> and <b>Scan for and attempt recovery of bad sectors</b>.</div></div><div><div>f)</div><div>Select <b>Start</b>.</div></div><div><div>g)</div><div>An information window is displayed which indicates that the Check Disk process cannot be performed immediately because the utility cannot obtain exclusive access to the drive.<div><div>Click <b>Yes</b> to proceed.</div><div>Click <b>OK</b> to close the Properties window.</div><div>Close the Disk Administrator window.</div></div></div><div><div>h)</div><div>Shut down and restart MPEGscope. Check Disk will execute during the system startup.</div></div></div></div></div>

CAUTION

*Do not remove the cover or handle any MPEGscope hardware unless advised to do so by your HP customer support representative.* Please disregard any instructions in your PC user's guide directing you to check or install components inside your PC. Interfering with MPEGscope hardware may invalidate your warranty.

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# A

- Technical A-2
- General A-5
- Line Interface A-6

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## Specifications

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# Specifications

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## Technical

Portions of the following standards are relevant to MPEGscope. You should be familiar with these standards before using this guide.

### ISO/IEC standards

- ISO/IEC 11172-2:1999 *Information technology—Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s—Part 2: Video*
- ISO/IEC 11172-3:1996 *Information technology—Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s—Part 3: Audio*
- ISO/IEC 13818-1:2000 *Information technology—Generic coding of moving pictures and associated audio information—Part 1: Systems*
- ISO/IEC 13818-2:2000 *Information technology—Generic coding of moving pictures and associated audio information—Part 2: Video*
- ISO/IEC 13818-3:1998 *Information technology—Generic coding of moving pictures and associated audio information—Part 3: Audio*
- ISO/IEC 13818-4:1998 *Information technology—Generic coding of moving pictures and associated audio information—Part 4: Compliance testing*
- ISO/IEC 13813-6:1999 *Information technology—Generic coding of moving pictures and associated audio information—Part 6: Extensions for DSM-CC*
- Amendment 1 to ISO/IEC 13818-6:1999 *Additions to support Data Broadcasting*
- Amendment 2 to ISO/IEC 13818-6:1999 *Additions to support Synchronized Download Services, Opportunistic Data Services and Resource Announcement in Broadcast and Interactive Service*
- ISO/IEC 13913-7:1998 *Information technology—Generic coding of moving pictures and associated audio information—Part 7: Advanced Audio Coding (AAC)*
- ISO/IEC 13818-9:1996 *Information technology—Generic coding of moving pictures and associated audio information—Part 9: Extensions for real time interface for system decoders*

### DVB standards

- ETR 154:1997 *Digital Video Broadcasting (DVB); Implementation guidelines for the use of MPEG-2 Systems, Video and Audio in satellite, cable and terrestrial broadcasting applications*
- ETR 162:1995 *Digital broadcasting systems for television, sound and data services; Allocation of Service Information (SI) codes for Digital Video Broadcasting (DVB) systems*

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- ETR 211:1997 *Digital Video Broadcasting (DVB); Guidelines on implementation and usage of DVB service information*
  - ETR 290:1997 *Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems*
  - EN 300 468 v1.3.1:1998-02 *Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems*
  - EN 300 472 v1.2.2:1997-08 *Specification for conveying ITU-R System B Teletext in DVB bitstreams*
  - Draft EN 301 192 v1.2.1:1999-01 *Digital Video Broadcasting (DVB); DVB specification for data broadcasting*
  - TR 101 202 v1.1.1:1999-02 *Digital Video Broadcasting (DVB); Implementation guidelines for Data Broadcasting*
  - TS 101 191 v1.2.1:1997 *Digital Video Broadcasting (DVB); DVB mega-frame for Single Frequency Network (SFN) synchronization*

#### ATSC standards

- ATSC A/52:1995 *Digital Audio Compression Standard (AC-3)*
- ATSC A/53:1995 *ATSC Digital Television Standard*
- *Draft Technical Corrigendum No. 1 to: ATSC Digital Television Standard Doc. A/53*
- ATSC A/54:1995 *Guide to the Use of the ATSC Digital Television Standard*
- ATSC A/57:1996 *Program/ Episode/ Version Identification—ATSC standard*
- ATSC A/63:1997 *Standard for Coding 25/50 Hz Video*
- ATSC A/65:1997 *Program and System Information Protocol for Terrestrial Broadcast and Cable—ATSC standard*
- ATSC A/66:1999 *Technical Corrigendum No. 1 to ATSC Standard: Program and System Information Protocol for Terrestrial Broadcast and Cable Doc. A/65*
- ATSC A/67:1999 *Amendment No. 1 to ATSC Standard: Program and System Information Protocol for Terrestrial Broadcast and Cable Doc. A/65*
- Draft ATSC T3/S13 Doc. 101 Rev. 1.2:1999 *ATSC Data Broadcast Specification*

#### RFCs

- IETF RFC 791: *Internet Protocol*
- IETF RFC 768: *User Datagram Protocol*
- IETF RFC 793: *Transmission Control Protocol*

#### ARIB standards

- ARIB STD-B1, Version 1.3

Interface standards

- ARIB STD-B10, Version 1.2
- ARIB STD-B15, Version 1.0
- ARIB STD-B20, Version 1.1
- ARIB STD-B24, Version 1.0
- TIA/EIA-644:1995 *Electrical characteristics of low voltage differential signalling (LVDS) interface circuits*
- EN 50083-9 *Interfaces for CATV/SMATV Headends and similar Professional Equipment*
- 016-0002-001: *Application Note 0002: Revision A: Using the DiviCom M2S Interface, DiviCom Inc.*
- SCTE DVS/110:4 Sept 1997: *Response to SCTE DVS CFI (DVS/089R1): Cable Headend and Distribution Systems, Section 3.2: Digital Headend Expansion Interface (DHEI)*
- *Proposed SMPTE Standard for Television—Synchronous Serial Interface fo MPEG-2 Digital Transport Stream, September, 1998*
- IEEE Std 1394-1995: *IEEE Standard for a High Performance Serial Bus*, IEEE Computer Society, 12 December 1995
- IEEE Std. 1394a-2000: *IEEE Standard for a High Performance Serial Bus*, IEEE Computer Society, 2000
- ISO/IEC 61883-1 1998-02: *Consumer audio/video equipment—Digital interface—Part 1: General*, First edition
- ISO/IEC 61883-4 1998-02: *Consumer audio/video equipment—Digital interface—Part 4: MPEG-2 TS data transmission*, International Electrotechnical Commission, First edition
- *AV/C Digital Interface Command Set General Specification*, 1394 Trade Association, Version 3.0, April 15, 1998
- *Enhancements to the AV/C General Specification 3.0*, 1394 Trade Association, Version 1.0, January 26, 1998
- *AV/C Digital Interface Command Set VCR Subunit Specification*, 1394 Trade Association, Version 2.0.1, January 5, 1998
- *AV/C Tuner Model and Command Set*, 1394 Trade Association, Version 1.0, April 15, 1998
- *AV/C Tuner Broadcast System Specification—Digital Video Broadcast (DVB)*, 1394 Trade Association, Version 1.0, April 15, 1998
- EIA-775: *DTV 1394 Interface Specification*, Electronic Industries Alliance, December, 1998



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# General

**Performance**

- Transmitting from disk:
  - Minimum: 250 Kb/s
  - Maximum: 85 Mb/s for E6277B, E6277C, E6300A, E6301A, E6302A  
60 Mb/s for E6277A
- Recording to disk: Up to 85 Mb/s for E6277B, E6277C, E6300A, E6301A, E6302A  
Up to 60 Mb/s for E6277A
- Real-time analysis: 42.5 Mb/s (including null packets) with the restriction that the PSI and SI table rates are less than 2 Mb/s

**Capacity**

- Multi-program transport stream (MPTS) can be recorded or transmitted
- Real-time measurements are performed on one transport stream
- Real-time measurements can occur simultaneously with recording to disk or transferring from disk
- up to 9 (or 18) GB of data can be recorded, depending on size of streaming disk. (18 GB streaming disk is Option E6277B Opt 518)

**Bus type**

PCI/ISA

**External clock**

- 50  $\Omega$  nominal, terminated to ground
- Level: 1 V p-p unbalanced
- Frequency range: 33 kHz to 66 MHz
- Connector: SMB
- Duty cycle: better than 55/45%
- Can be used by the transmit ports

**27 MHz reference clock**

- High impedance
- Level: TTL
- Connector: SMB
- Duty cycle: better than 55/45%
- Can be used as a measurement reference for the real-time analyzer

## Line Interface

### Port Configurations

	SPI	ASI	M2S	DHEI
Type	8-bit parallel	serial	serial	serial
Maximum line rate	108 Mb/s	216 Mb/s	216 Mb/s	40 Mb/s
Timestamps	Packet timestamp clock: 10 MHz +/- 5 ppm	Packet timestamp clock: 33 MHz +/- 5 ppm	Packet timestamp clock: 33 MHz +/- 5 ppm	Packet timestamp clock: 33 MHz +/- 5 ppm
	Resolution of timestamp clock: 100 ns	Resolution of timestamp clock: 30 ns	Resolution of timestamp clock: 30 ns	Resolution of timestamp clock: 30 ns
	Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets	Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets	Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets	Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets
Electrical Spec	EIA/TIA-644 (LVDS)	75 $\Omega$ coax	50 $\Omega$ coax	Balanced ECL
Connector Type	DB-25 (through adapter)	BNC	SMA/SMB (through adapter)	DB-25
Standard	EN 50083-9 "Interfaces for CATV/SMATV Headends and similar Professional Equipment"	EN 50083-9 "Interfaces for CATV/SMATV Headends and similar Professional Equipment"	"Using the DiviCom M2S Interface"—DiviCom Application Note 0002	SCTE DVS/110 4 September 1997 Response to SCTE DVS CFI (DVS/089R1): Cable Headend and Distribution Systems
Part Number	N/A	ASI and Serial ECL (DHEI) interface: E6291A		

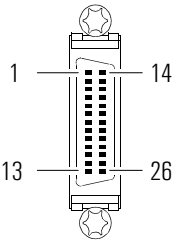
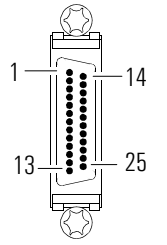
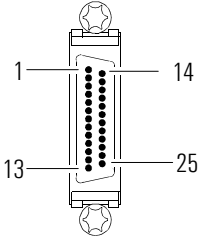
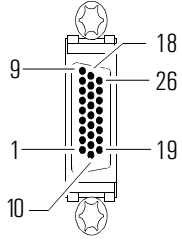
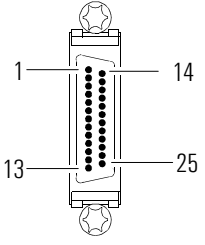
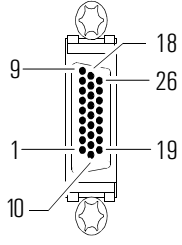
**WARNING**

To ensure the Electromagnetic Compatibility (EMC) of MPEGscope, use shielded cables on all interfaces.

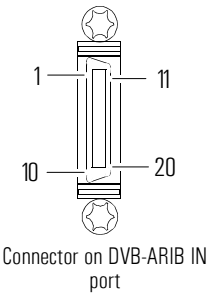
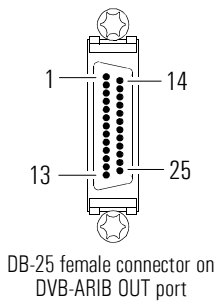
	SMPTE 310M	ARIB
Type	Biphase mark	Synchronous 8-bit parallel
Maximum line rate	40 Mb/s (Minimum line rate is 16 Mb/s)	42.5 Mb/s (Receive clock rate is 25 kHz to 12.25 MHz)
Timestamps	Packet timestamp clock: 10 MHz +/- 5 ppm  Resolution of timestamp clock: 100 ns  Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets	Packet timestamp clock: 10 MHz +/- 5 ppm  Resolution of timestamp clock: 100 ns  Packet timestamp sampling is accurate to within +/- 1 timestamp clock period between consecutive packets
Electrical Spec	800 mV pp (nominal)	TTL levels
Connector Type	75 $\Omega$ BNC	20 pin Mini-SCSI
Standard	SMPTE 310M Standard, Sept. 98	ARIB STD-B1, Version 1.1
Part Number	E6292A	E6289A

<b>WARNING</b>	To ensure the Electromagnetic Compatibility (EMC) of MPEGscope, use shielded cables on all interfaces.
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Pinouts

	Pin	SPI 26 <sup>(a)</sup>	SPI 25 <sup>(b)</sup>	M2S <sup>(c)</sup>	DHEI <sup>(d)</sup>	DHEI EXP IN <sup>(e)</sup>	DHEI EXP OUT <sup>(e)</sup>	
	1	Clock B	Clock A	—	PROTGND	PROTGND	PROTGND	
	2	Clock A	GND	—	PCLKI +	SENSEOR	SENSEIR	
	3	Data 7 B	Data 7 A	—	PDATAI +	PSYNCO-	PSYNCI-	
	4	Data 7 A	Data 6 A	—	PSYNCI +	PDATAO-	PDATAI-	
	5	Data 5 B	Data 5 A	—	SENSEIL	PCLKO +	PCLKI +	
	6	Data 5 A	Data 4 A	—	REFCLKI +	PCLKO-	PCLKI-	
	7	Data 3 B	Data 3 A	—	SIGGND	REFCLKO +	REFCLKI +	
	8	Data 3 A	Data 2 A	—	PCLKO +	REFCLKO-	REFCLKI-	
	9	Data 1 B	Data 1 A	—	PDATAO +	SIGGND	SIGGND	
	10	Data 1 A	Data 0 A	—	PSYNCO +	—	—	
	11	DVALID B	DVALID A	—	SENSEOL	SENSEOL	SENSEIL	
	12	DVALID A	PSYNC A	—	REFCLKO +	PSYNCO +	PSYNCI +	
	13	GND	GND	Serial-	SIGGND	PDATAO +	PDATAI +	
	14	GND	Clock B	—	SIGGND	—	—	
	15	GND	GND	—	PCLKI-	—	—	
	16	Data 6 B	Data 7 B	—	PDATAI-	—	—	
	17	Data 6 A	Data 6 B	—	PSYNCI-	—	—	
	18	Data 4 B	Data 5 B	—	SENSEIR	—	—	
	19	Data 4 A	Data 4 B	—	REFCLKI-	—	—	
	20	Data 2 B	Data 3 B	—	SIGGND	—	—	
	21	Data 2 A	Data 2 B	—	PCLKO-	—	—	
	22	Data 0 B	Data 1 B	—	PDATAO-	—	—	
	23	Data 0 A	Data 0 B	—	PSYNCO-	—	—	
	24	PSYNC B	DVALID B	—	SENSEOR	—	—	
	25	PSYNC A	PSYNC B	—	REFCLKO-	—	—	
	26	GND	—	Serial +	—	—	—	
<p>a. AMPLIMITE™ 26-pin connector b. DB-25 connector c. SMA/SMB connector d. DB-25 connector e. AMPLIMITE™ HD- 22 26-pin connector</p>								

Pinouts



Pin	ARIB <sup>(a)</sup>
1	Data TPD7 (MSB)
2	Data TPD6
3	Data TPD5
4	Data TPD4
5	Data TPD3
6	Data TPD2
7	Data TPD1
8	Data TPD0 (LSB)
9	BCK Byte Clock
10	PSY Packet Start
11	Reserved (Out)
12	SLOCK Synch
13	SEN Activate
14	Open - Not Connected
15	GND Signal
16	GND Signal
17	GND Signal
18	Reserved (In)
19	Reserved (In)
20	Reserved (Out)
21	—
22	—
23	—
24	—
25	—
26	

a. ARIB IN connector



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# B

- Reinstalling Software B-2
- Performing a System Backup B-3
- Performing a System Restore B-4

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## Reinstalling Software

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# Reinstalling Software

MPEGscope comes with all the software pre-installed. However, an installation disk is included in case you need to reinstall the software for any reason. This appendix explains how to reinstall software, perform a system backup, and restore your system.

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## Reinstalling Software

This process takes five to ten minutes.

- 1 If you have lost the license file backup disk shipped with your MPEGscope, back up your permanent license file before installing software by copying the file **C:\HP-Apps\FLEXlm\licence.dat** to a floppy disk.
- 2 Insert the MPEGscope installation CD into the CD-ROM drive.
- 3 Launch the installation program by double-clicking on **D:\Setup.exe** from the Windows<sup>®</sup> NT Explorer window.
- 4 Follow the prompts in the installation dialogs. Accept the defaults each time you are prompted for a choice.
- 5 When the installation program has finished copying MPEGscope files, the PC will automatically shut down. Instead of resetting the PC, turn off the power with the power switch.
- 6 Turn the power back on and log in. When the PC reboots, firmware is automatically downloaded to the MPEGscope main card.

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### IMPORTANT

Occasionally a blue “crash dump” screen may occur if you log in quickly. To avoid the problem, do not log in until the hard disk light on the front of your PC has stopped flickering and all disk activity has stopped. If a blue screen occurs, press the **reset** button and hold it down for a few seconds to make sure that MPEGscope resets.

- 7 Follow the prompts to shut down the PC once more. Use the power switch to turn off the PC when Windows<sup>®</sup> NT indicates it is safe to do so.
- 8 Turn the power switch back on and remove the MPEGscope installation CD from the CD-ROM drive.



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## Performing a System Backup

If you have purchased the optional 12/24 GB DAT drive, you can perform a system backup as follows:

- 1 Start the Windows<sup>®</sup> NT Backup program:
  - Click the **Start** button on the task bar.
  - Select **Programs, Administrative Tools (Common), Backup**.
- 2 Expand the **Drives** window.
- 3 Enable the check boxes to the left of drives **C:** and **E:** to select them.
- 4 Click the **Backup** button.
- 5 From the Backup Information window, select **Backup Local Registry**, then click **OK** to start the backup procedure. Progress will be displayed in a Backup Status window. During the procedure, at least one file will be skipped (a temporary file used by the backup program). The procedure takes at least six minutes to complete, and possibly longer.
- 6 When the Backup Status window indicates that the procedure is complete, close all Backup windows, eject the cassette, and store it in a safe place.

---

## Performing a System Restore

After backing up the system drive to the optional 12/24 GB DAT drive, you can restore it as follows:

- 1 Start the Windows<sup>®</sup> NT Backup program:
  - Click the **Start** button on the task bar.
  - Select **Programs, Administrative Tools (Common), Backup**.
- 2 Expand the **Tapes** window.
- 3 Double click the **C:MPEGSCOPE** entry. The tape program will create an inventory list of the files on the tape.
- 4 Click the **Restore** button.
- 5 The Restore Information window should display **Restore to Drive=C:MPEGSCOPE**. Select **Restore Local Registry** and **Restore File Permissions**, then click **OK**.
- 6 Progress will be displayed in a Restore Status window. Early in the procedure, a **Confirm File Replace** warning message will be displayed. Select **Yes to All** to proceed.
- 7 When the procedure is complete, shut down and restart the PC.

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